

WHAT IS CLAIMED IS:

1. A reclining seat comprising:  
a seat cushion;  
a seat back pivotally mounted to said seat cushion;  
first and second locking means arranged at both sides of said seat for securing said seat back relative to said seat cushion; and  
a supporting shaft interconnecting said first and second locking means;  
said supporting shaft having first and second end portions;  
said first locking means including a first actuating shaft for facilitating selective securing of said seat back relative to said seat cushion;  
said second locking means including a second actuating shaft for facilitating selective securing of said seat back relative to said seat cushion;  
said first actuating shaft being rigidly or fixedly connected to said first end portion of said supporting shaft; and  
said second actuating shaft being connected to said second end portion of said supporting shaft so that said second actuating shaft and said supporting shaft are rotatable by a predetermined angle relative to each other.

2. A reclining seat as defined in claim 1, wherein said supporting shaft is formed into a substantially cylindrical shape, said second end portion of said supporting shaft is formed into a substantially elliptical shape in cross-section and comprises a pair

of flat wall sections spaced apart from each other, and a pair of circular arc-shaped wall sections spaced apart from each other and interconnecting said flat wall sections, and said second actuating shaft has first and second end portions, said first end portion of said second actuating shaft having an axial portion and a pair of flange portions which are spaced apart from each other and protruding radially from said axial portion, and said flanged end portion of said second actuating shaft being received in said second end portion of said supporting shaft.

3. A reclining seat as defined in claim 2, wherein said first end portion of said second actuating shaft has a round bar-like body, said spaced apart flange portions projecting radially from said round bar-like body, said first end portion of said second actuating shaft being received in said second end portion of said supporting shaft so that said round bar body and said spaced apart flat wall sections of said supporting shaft are slide relative to each other and said flange portions and said spaced apart circular arc-shaped wall sections are slid relative to each other, when one of said supporting shaft and said second actuating shaft is rotated relative to the other of said supporting shaft and said second actuating shaft.

4. A reclining seat as defined in claim 2, wherein said second end portion of said supporting shaft further includes corner portions between said flat wall sections and said circular arc-shaped wall sections, said flange portions of said second actuating shaft and said corner portions of said supporting shaft being

adapted to be engaged with each other when one of said supporting shaft and said second actuating shaft is rotated relative to the other of said supporting shaft and said second actuating shaft.

5. A reclining seat as defined in claim 3, wherein said second end portion of said supporting shaft further includes corner portions between said flat wall sections and said circular arc-shaped wall sections, said flange portions of said second actuating shaft and said corner portions of said supporting shaft being adapted to be engaged with each other when one of said supporting shaft and said second actuating shaft is rotated relative to the other of said supporting shaft and said second actuating shaft.

6. A reclining seat as defined in claim 1, wherein said first locking means comprises:

a first disk-like housing mounted to a seat cushion frame for said seat cushion;

a first disk-like cover plate received in said first housing in a face to face relation so as to be rotatable relative to said first housing, and mounted to a seat back frame for said seat back;

first locking gear means arranged within an inner surface of said first housing between said first housing and said first cover plate;

said first locking gear means being movable between a first locked position and a first unlocked position;

first cooperating means on said first disk-like cover plate and said first locking gear means for securing said seat back relative to

said seat cushion in said first locked position; and

a first cam for causing said first locking gears means to be moved between said first locked position and said first unlocked position;

said first cam being mounted to said first actuating shaft for rotation therewith; and

said first cam being arranged within said first housing with said first actuating shaft of said first cam extending through said first housing and said first cover plate; and

said second locking means comprises:

a second disk-like housing mounted to said seat cushion frame for said seat cushion;

a second disk-like cover plate received in said second housing in a face to face relation so as to be rotatable relative to said second housing, and mounted to said seat back frame for said seat back;

second locking gear means arranged within an inner surface of said second housing between said second housing and said second cover plate;

said second locking gear means being movable between a second locked position and a second unlocked position;

second cooperating means on said second disk-like cover plate and said second locking gear means for securing said seat back relative to said seat cushion in said second locked position; and

a second cam for causing said second locking gears means to

be moved between said second locked position and said second unlocked position;

said second cam being mounted to said second actuating shaft for rotation therewith; and

said second cam being arranged within said second housing with said second actuating shaft of said second cam extending through said second housing and said second cover plate.

7. A reclining seat as defined in claim 2, wherein said first locking means comprises:

a first disk-like housing mounted to a seat cushion frame for said seat cushion;

a first disk-like cover plate received in said first housing in a face to face relation so as to be rotatable relative to said first housing, and mounted to a seat back frame for said seat back;

first locking gear means arranged within an inner surface of said first housing between said first housing and said first cover plate;

said first locking gear means being movable between a first locked position and a first unlocked position;

first cooperating means on said first disk-like cover plate and said first locking gear means for securing said seat back relative to said seat cushion in said first locked position; and

a first cam for causing said first locking gears means to be moved between said first locked position and said first unlocked position;

said first cam being mounted to said first actuating shaft for rotation therewith; and

said first cam being arranged within said first housing with said first actuating shaft of said first cam extending through said first housing and said first cover plate; and

said second locking means comprises:

a second disk-like housing mounted to said seat cushion frame for said seat cushion;

a second disk-like cover plate received in said second housing in a face to face relation so as to be rotatable relative to said second housing, and mounted to said seat back frame for said seat back;

second locking gear means arranged within an inner surface of said second housing between said second housing and said second cover plate;

said second locking gear means being movable between a second locked position and a second unlocked position;

second cooperating means on said second disk-like cover plate and said second locking gear means for securing said seat back relative to said seat cushion in said second locked position; and

a second cam for causing said second locking gears means to be moved between said second locked position and said second unlocked position;

said second cam being mounted to said second actuating shaft for rotation therewith; and

said second cam being arranged within said second housing with said second actuating shaft of said second cam extending through said second housing and said second cover plate.

8. A reclining seat as defined in claim 3, wherein said first locking means comprises:

a first disk-like housing mounted to a seat cushion frame for said seat cushion;

a first disk-like cover plate received in said first housing in a face to face relation so as to be rotatable relative to said first housing, and mounted to a seat back frame for said seat back;

first locking gear means arranged within an inner surface of said first housing between said first housing and said first cover plate;

said first locking gear means being movable between a first locked position and a first unlocked position;

first cooperating means on said first disk-like cover plate and said first locking gear means for securing said seat back relative to said seat cushion in said first locked position; and

a first cam for causing said first locking gears means to be moved between said first locked position and said first unlocked position;

said first cam being mounted to said first actuating shaft for rotation therewith; and

said first cam being arranged within said first housing with said first actuating shaft of said first cam extending through said

first housing and said first cover plate; and

said second locking means comprises:

a second disk-like housing mounted to said seat cushion frame for said seat cushion;

a second disk-like cover plate received in said second housing in a face to face relation so as to be rotatable relative to said second housing, and mounted to said seat back frame for said seat back;

second locking gear means arranged within an inner surface of said second housing between said second housing and said second cover plate;

said second locking gear means being movable between a second locked position and a second unlocked position;

second cooperating means on said second disk-like cover plate and said second locking gear means for securing said seat back relative to said seat cushion in said second locked position; and

a second cam for causing said second locking gears means to be moved between said second locked position and said second unlocked position;

said second cam being mounted to said second actuating shaft for rotation therewith; and

said second cam being arranged within said second housing with said second actuating shaft of said second cam extending through said second housing and said second cover plate.

9. A reclining seat as defined in claim 4, wherein said first

locking means comprises:

a first disk-like housing mounted to a seat cushion frame for said seat cushion;

a first disk-like cover plate received in said first housing in a face to face relation so as to be rotatable relative to said first housing, and mounted to a seat back frame for said seat back;

first locking gear means arranged within an inner surface of said first housing between said first housing and said first cover plate;

said first locking gear means being movable between a first locked position and a first unlocked position;

first cooperating means on said first disk-like cover plate and said first locking gear means for securing said seat back relative to said seat cushion in said first locked position; and

a first cam for causing said first locking gears means to be moved between said first locked position and said first unlocked position;

said first cam being mounted to said first actuating shaft for rotation therewith; and

said first cam being arranged within said first housing with said first actuating shaft of said first cam extending through said first housing and said first cover plate; and

said second locking means comprises:

a second disk-like housing mounted to said seat cushion frame for said seat cushion;

a second disk-like cover plate received in said second housing in a face to face relation so as to be rotatable relative to said second housing, and mounted to said seat back frame for said seat back;

second locking gear means arranged within an inner surface of said second housing between said second housing and said second cover plate;

said second locking gear means being movable between a second locked position and a second unlocked position;

second cooperating means on said second disk-like cover plate and said second locking gear means for securing said seat back relative to said seat cushion in said second locked position; and

a second cam for causing said second locking gears means to be moved between said second locked position and said second unlocked position;

said second cam being mounted to said second actuating shaft for rotation therewith; and

said second cam being arranged within said second housing with said second actuating shaft of said second cam extending through said second housing and said second cover plate.

10. A reclining seat as defined in claim 5, wherein said first locking means comprises:

a first disk-like housing mounted to a seat cushion frame for said seat cushion;

a first disk-like cover plate received in said first housing in a

face to face relation so as to be rotatable relative to said first housing, and mounted to a seat back frame for said seat back;

first locking gear means arranged within an inner surface of said first housing between said first housing and said first cover plate;

said first locking gear means being movable between a first locked position and a first unlocked position;

first cooperating means on said first disk-like cover plate and said first locking gear means for securing said seat back relative to said seat cushion in said first locked position; and

a first cam for causing said first locking gears means to be moved between said first locked position and said first unlocked position;

said first cam being mounted to said first actuating shaft for rotation therewith; and

said first cam being arranged within said first housing with said first actuating shaft of said first cam extending through said first housing and said first cover plate; and

said second locking means comprises:

a second disk-like housing mounted to said seat cushion frame for said seat cushion;

a second disk-like cover plate received in said second housing in a face to face relation so as to be rotatable relative to said second housing, and mounted to said seat back frame for said seat back;

second locking gear means arranged within an inner surface

of said second housing between said second housing and said second cover plate;

said second locking gear means being movable between a second locked position and a second unlocked position;

second cooperating means on said second disk-like cover plate and said second locking gear means for securing said seat back relative to said seat cushion in said second locked position; and

a second cam for causing said second locking gears means to be moved between said second locked position and said second unlocked position;

said second cam being mounted to said second actuating shaft for rotation therewith; and

said second cam being arranged within said second housing with said second actuating shaft of said second cam extending through said second housing and said second cover plate.

11. A reclining seat as defined in claim 6, wherein said first locking gear means comprises a plurality of first locking gears, said first cooperating means comprises a circumferentially toothed surface formed around an inner periphery of said first cover plate and a toothed surface formed on each of said first locking gears, said first locking gears being radially arranged within said first housing and surrounding said first cam, said second locking gear means comprises a plurality of second locking gears, and said second cooperating means comprises a circumferentially toothed

surface formed around an inner periphery of said second first cover plate and a toothed surface formed on each of said second locking gears, said second locking gears being radially arranged within said second housing and surrounding said second cam.

12. A reclining seat as defined in claim 7, wherein said first locking gear means comprises a plurality of first locking gears, said first cooperating means comprises a circumferentially toothed surface formed around an inner periphery of said first cover plate and a toothed surface formed on each of said first locking gears, said first locking gears being radially arranged within said first housing and surrounding said first cam, said second locking gear means comprises a plurality of second locking gears, and said second cooperating means comprises a circumferentially toothed surface formed around an inner periphery of said second first cover plate and a toothed surface formed on each of said second locking gears, said second locking gears being radially arranged within said second housing and surrounding said second cam.

13. A reclining seat as defined in claim 8, wherein said first locking gear means comprises a plurality of first locking gears, said first cooperating means comprises a circumferentially toothed surface formed around an inner periphery of said first cover plate and a toothed surface formed on each of said first locking gears, said first locking gears being radially arranged within said first housing and surrounding said first cam, said second locking gear means comprises a plurality of second locking gears, and said

second cooperating means comprises a circumferentially toothed surface formed around an inner periphery of said second first cover plate and a toothed surface formed on each of said second locking gears, said second locking gears being radially arranged within said second housing and surrounding said second cam.

14. A reclining seat as defined in claim 9, wherein said first locking gear means comprises a plurality of first locking gears, said first cooperating means comprises a circumferentially toothed surface formed around an inner periphery of said first cover plate and a toothed surface formed on each of said first locking gears, said first locking gears being radially arranged within said first housing and surrounding said first cam, said second locking gear means comprises a plurality of second locking gears, and said second cooperating means comprises a circumferentially toothed surface formed around an inner periphery of said second first cover plate and a toothed surface formed on each of said second locking gears, said second locking gears being radially arranged within said second housing and surrounding said second cam.

15. A reclining seat as defined in claim 10, wherein said first locking gear means comprises a plurality of first locking gears, said first cooperating means comprises a circumferentially toothed surface formed around an inner periphery of said first cover plate and a toothed surface formed on each of said first locking gears, said first locking gears being radially arranged within said first housing and surrounding said first cam, said second locking gear

means comprises a plurality of second locking gears, and said second cooperating means comprises a circumferentially toothed surface formed around an inner periphery of said second first cover plate and a toothed surface formed on each of said second locking gears, said second locking gears being radially arranged within said second housing and surrounding said second cam.

16. A reclining seat as defined in claim 1, wherein said first actuating shaft has first and second end portions, said first end portion of said first actuating shaft being rigidly or fixedly connected to said first end portion of said supporting shaft, and wherein said seat further includes an operating lever which is mounted to said second end portion of said first actuating shaft.

17. A reclining seat as defined in claim 2, wherein said first actuating shaft has first and second end portions, said first end portion of said first actuating shaft being rigidly or fixedly connected to said first end portion of said supporting shaft, and wherein said seat further includes an operating lever which is mounted to said second end portion of said first actuating shaft.

18. A reclining seat as defined in claim 3, wherein said first actuating shaft has first and second end portions, said first end portion of said first actuating shaft being rigidly or fixedly connected to said first end portion of said supporting shaft, and wherein said seat further includes an operating lever which is mounted to said second end portion of said first actuating shaft.

19. A reclining seat as defined in claim 4, wherein said first

actuating shaft has first and second end portions, said first end portion of said first actuating shaft being rigidly or fixedly connected to said first end portion of said supporting shaft, and wherein said seat further includes an operating lever which is mounted to said second end portion of said first actuating shaft.

20. A reclining seat as defined in claim 5, wherein said first actuating shaft has first and second end portions, said first end portion of said first actuating shaft being rigidly or fixedly connected to said first end portion of said supporting shaft, and wherein said seat further includes an operating lever which is mounted to said second end portion of said first actuating shaft.

21. A reclining seat as defined in claim 6, wherein said first actuating shaft has first and second end portions, said first end portion of said first actuating shaft being rigidly or fixedly connected to said first end portion of said supporting shaft, and wherein said seat further includes an operating lever which is mounted to said second end portion of said first actuating shaft.

22. A reclining seat as defined in claim 7, wherein said first actuating shaft has first and second end portions, said first end portion of said first actuating shaft being rigidly or fixedly connected to said first end portion of said supporting shaft, and wherein said seat further includes an operating lever which is mounted to said second end portion of said first actuating shaft.

23. A reclining seat as defined in claim 8, wherein said first actuating shaft has first and second end portions, said first end

portion of said first actuating shaft being rigidly or fixedly connected to said first end portion of said supporting shaft, and wherein said seat further includes an operating lever which is mounted to said second end portion of said first actuating shaft.

24. A reclining seat as defined in claim 9, wherein said first actuating shaft has first and second end portions, said first end portion of said first actuating shaft being rigidly or fixedly connected to said first end portion of said supporting shaft, and wherein said seat further includes an operating lever which is mounted to said second end portion of said first actuating shaft.

25. A reclining seat as defined in claim 10, wherein said first actuating shaft has first and second end portions, said first end portion of said first actuating shaft being rigidly or fixedly connected to said first end portion of said supporting shaft, and wherein said seat further includes an operating lever which is mounted to said second end portion of said first actuating shaft.

26. A reclining seat as defined in claim 11, wherein said first actuating shaft has first and second end portions, said first end portion of said first actuating shaft being rigidly or fixedly connected to said first end portion of said supporting shaft, and wherein said seat further includes an operating lever which is mounted to said second end portion of said first actuating shaft.

27. A reclining seat as defined in claim 12, wherein said first actuating shaft has first and second end portions, said first end portion of said first actuating shaft being rigidly or fixedly

connected to said first end portion of said supporting shaft, and wherein said seat further includes an operating lever which is mounted to said second end portion of said first actuating shaft.

28. A reclining seat as defined in claim 13, wherein said first actuating shaft has first and second end portions, said first end portion of said first actuating shaft being rigidly or fixedly connected to said first end portion of said supporting shaft, and wherein said seat further includes an operating lever which is mounted to said second end portion of said first actuating shaft.

29. A reclining seat as defined in claim 14, wherein said first actuating shaft has first and second end portions, said first end portion of said first actuating shaft being rigidly or fixedly connected to said first end portion of said supporting shaft, and wherein said seat further includes an operating lever which is mounted to said second end portion of said first actuating shaft.

30. A reclining seat as defined in claim 15, wherein said first actuating shaft has first and second end portions, said first end portion of said first actuating shaft being rigidly or fixedly connected to said first end portion of said supporting shaft, and wherein said seat further includes an operating lever which is mounted to said second end portion of said first actuating shaft.